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LETTER TO THE EDITOR

Headaches in subjects occupationally exposed to benzene vapors

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Dear Editor,

Benzene has become a focused controlled substance in industry. Breathing extremely high levels of benzene can result in death, while exposure to high levels can cause drowsiness, dizziness, palpitations, headaches, tremors, confusion and unconsciousness. Long-term benzene exposure causes hematotoxicity, genotoxicity and immunotoxicity in humans. Central nervous system symptoms, consistent with solvent exposure including lightheadedness, fatigue, increased sleep requirement and headache, are described [1]. Sińczuk-Walczak et al. [2] reported headache, dizziness, increased emotional excitability and memory as well as concentration disturbances. In this article, the author focuses on the topic of headache in subjects occupationally exposed to benzene vapors. The mechanism of benzene-induced headache is not well described. According to the study of Sińczuk-Walczak et al. [2], no organic changes in the central or in the peripheral nervous system could be demonstrated; however, certain anomalies were noted on electroencephalography and visually evoked potential examinations, which might indicate preclinical changes in the nervous system. This is also confirmed by an animal model study [3]. With respect to acute neurotoxicity, the described aberration in basic electrophysiology of the brain is believed to be the possible factor that induces headache.

However, headache can also be the presentation in chronic benzene exposure. There might be some other factors related to headache in this case. Wiwanitkit [4] recently presented an interesting observation that there is a trend of increased blood pressure in subjects with a long history of occupational exposure to benzene. Benzene-related primary hypertension might be another possible explanation for headache in chronic exposure. The magnitude of benzene-induced headache is not widely determined. According to the literature, Polakowska [5] reported that vasomotor headaches appeared to be much more frequent in benzene-exposed workers, as compared to controls. Polakowska [5] also found that subjects' age and length of employment did not affect significantly the prevalence of headache. However, this paper reported only on female subjects [4]. Here, the author will present the experience in another group of occupationally exposed male subjects. Based on the previously published work [4], 55 healthy policemen were studied for exposure to benzene using the urine phenol level as biomarker. All subjects were healthy adult males without any underlying diseases and had worked as traffic police for at least 2 years [4]. All had the same occupation and similar diets and drinking habits [4]. Of the 55 subjects, the author found that 40 (72.7%) reported to have complaints of vasomotor headache. This indicates the high prevalence of headache. In addition, when the subjects were classified into high exposure and moderate exposure groups, the prevalence of headache in the high exposure group (14/14) was significantly higher than in the moderate exposure group (26/41). Of interest, all subjects in the high exposure group also had hypertension; therefore, it can be confirmed that benzene-induced hypertension is an important factor leading to headache in chronic exposure.

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